

# Cost-effectiveness in R. 15-01-008

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# How did we get here?

- Working group identified best practices
- Staff evaluated all practices using available data
- Staff made recommendations



“All of the **mandatory requirements** have been proposed because they are either considered a **crucial element to the success** of the program (e.g., compliance, programs, training, etc.) **or because they will detect or mitigate the largest volume of methane** emitted and leaked (blowdowns, threaded fittings, graded and ungraded leaks, uncontrolled releases of methane). **They also appear to be cost-effective**, based on current utility experience or projected commercial cost (if still in R&D).”


# MMBPs are Essential to Success

- EDF concurs with Staff that the MMBPs are cost-effective as a portfolio
  - The cost-effectiveness requirements can be met while setting a baseline of BPs for California
  - EDF proposes that once the full set of MMBPs are found to be cost effective for California as a whole, there is a rebuttable presumption that they are cost effective for all regulated entities
    - To ensure flexibility and affordability to ratepayers
- \*Rebuttable presumption – Once approved by CARB and CPUC, burden is on utilities to show credible evidence to the contrary

# Use a Portfolio Approach to Evaluate Cost-effectiveness

- Portfolio: view mandatory best practices as group, not individually
  - Comprehensive: consider all costs and benefits from a societal perspective
  - Avoid atomism
    - Misses societal values, notably social cost of methane
    - Misses non-market values, such as reliability gains and safety benefits
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# **Holistic Cost-effectiveness Framework: Values to Include**

- Traditional utility costs
  - Reduced gas lost to leakage
  - Avoided social costs of methane
  - Safety improvements
  - System reliability improvements
  - Other values as appropriate
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# Legislative Considerations

- SB 1383
  - **39730.5.** “the state board shall approve and begin implementing the comprehensive short-lived strategy developed ... to achieve a reduction in the statewide emissions of methane **by 40 percent** ... below 2013 levels by 2030.”
- AB 197
  - **38562.5** “the **state board shall ... consider the social costs of the emissions of greenhouse gases.**”

# Cost-effectiveness Is Just One Measure of Good Policy

- Efficiency
- Fairness
- Incentives to innovate
- Potential for unintended consequences
- Enforceability
- Government capacities
- Agreement with moral precepts

Source: Field & Field, Environmental Economics. McGraw-Hill, 4<sup>th</sup> Ed.

# Consider Non-market Values

- Private Leak Repair Costs
    - Capital
    - Labor
    - Legal & regulatory
  - Private Benefits
    - Gas (energy) purchases
    - Storage & delivery capacity
    - Regulatory compliance
    - IOU shareholder profits
    - Proximate health & ecosystem impacts
  - Social Costs
    - External private and environmental impacts
    - Option values
    - Existence values
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Henry Hub Natural Gas Spot Price  
(Dollars per Million Btu)




# SCM in Context

- SCM is a small change in comparison to wholesale prices
    - Small % of current prices
    - Within range of historic variation
    - Prices are at historic lows
  - Social costs are real costs
    - Low-income ratepayers likely to be most affected by climate change
    - Principle of intergenerational equity
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# Other Regulations Including SCM

<b>SOCIAL COST OF METHANE ACTIONS</b>				
<b>Date</b>	<b>Agency</b>	<b>Regulatory or related action</b>	<b>Action</b>	<b>Version of SC-CH<sub>4</sub></b>
27-Aug-15	EPA	proposed	Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills. 80 FR 52099.	2015
18 Sep-15	EPA	proposed	Oil and Natural Gas Sector: Emission Standards for New and Modified Sources. 80 FR 56593.	2015
8-Feb-16	BLM	proposed	Waste Prevention, Production Subject to Royalties, and Resource Conservation. 81 FR 6615.	2015
23-Feb-16	FS	notice	Environmental Impact Statements; Availability, etc.: Grand Mesa, Uncompahgre, and Gunnison National Forests; Colorado; Federal Coal Lease Modifications COC-1362&COC-67232. 81 FR 8899.	none
3-Jun-16	EPA	final	Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources. 81 FR 35823.	2015
29-Aug-16	EPA	final	Standards of Performance for Municipal Solid Waste Landfills. 81 FR 59331.	2015
29-Aug-16	EPA	final	Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills. 81 FR 59275.	2015

# **Social Cost Should Not Be Ignored in Rulemaking with a Purpose of Minimizing Social Costs**

- The purpose of this rulemaking should not be lost in the details
  - We must ensure that the required best practices achieve all requirements of the law
    - They must be the maximum technologically feasible
    - And cost-effective
    - While obtaining the overall goal of minimizing emissions
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# Qualitative Evaluation of Best Practices

- EDF agrees with Staff analysis that the recommended practices are crucial to the success of the program and likely cost-effective under the proposed framework.
  - Qualitative analysis can and should be used in addition to strict cost and emissions data analysis
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# Mandatory BPs are Likely Cost-effective

- Company policies – methane is a potent GHG; it should be prevented from escaping; policies implementing best practices; procedural documents that include steps to effectively reduce methane emissions; maintaining records; developing procedures for stopping the uncontrolled release of natural gas; keeping records ... etc..
  - Incorporating best practices into regular business practices is essential to successfully reducing methane emission

# BPs Continued...

- Training employees to ensure they know how to implement best practices and to the importance of minimizing methane emissions
  - The compliance framework will not be successful if the people responsible for implementing it are not trained on **how** to implement it and **why** reducing emissions is important
- A three-year leak survey cycle
  - Already implemented by some utilities for safety purposes
  - Will allow utilities to know of and then repair leaks years sooner


# Benefits of Advanced Leak Detection Technology

- Mobile mounted leak detection and mapping
    - Finds 80% more leaks in 40% of the time
    - Distribution leaks are in the top three sources of emissions
    - Expands the field of vision so that customer meter leaks could be found without going on to customer property
    - Necessary to ensure that all emissions are accounted for
    - Provides transparency to ratepayers
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# Benefits of Data to Prioritize Repair/Replacement

- PSE&G
  - Applied a grid method to prioritize pipe segments for replacement.
- Con Ed – using the CSU algorithm EDF found:
  - 6% of leaks are responsible for more than 1/3 of all emissions
  - Fixing largest 15% of leaks removes 50% of emissions
  - Fixing largest 1/3 of the leaks removes 70% of the emissions.
  - Fixing largest 50% of leaks removes 80% of emissions
- New study from Stanford finds that nationwide 5% of leaks responsible for greater than 50% of emissions
  - <http://pubs.acs.org/doi/abs/10.1021/acs.est.6b04303>

# Find It/Fix It Policy

- Distribution leaks are in the top 3 emission sources for all utilities.
  - Setting timelines for Grade 3 leak repair ensures that utilities continue to improve practices and that backlogs do not accrue again
  - Shortening timelines for Grade 2 leak repairs will lessen the amount of emissions from a large category of leaks
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# Spatial Analytics as a BP

- Predictive leak modeling incorporating spatial analytics and model outputs in DIMP risk model and capital replacement
- Case Study by PWC
  - Over three times greater leak avoidance
  - Over three times greater replacement rate
  - Over four times greater avoided O&M costs

# EDF Proposed Framework for Evaluation

- CPUC and CARB evaluate cost-effectiveness of the portfolio of BPs including all benefits
  - e.g., social cost of methane, system reliability, and safety improvements
- CPUC and CARB determine the MMBPs that must be included in each regulated entities compliance plan
- If necessary, individual entities rebut the cost-effectiveness presumption for specific BPs by providing credible evidence

# Next Steps for R. 15-01-008

- A consensus/precise wording of the best practices is recommended
  - Parties work together on the BPs with ambiguity
  - May need a decision by the CPUC if consensus not achievable for all BPs
- Utilities provide must cost analysis of all MMBP's based on precise wording + individual voluntary measures
- ARB and CPUC should evaluate costs across the state to determine if the program is cost-effective



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